

Work Order ID 155913

Wednesday, January 18, 2017 7:42:57 AM

155913

Page 1

Item ID: D3582-1-BENT Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Skidtube Assembly BK117
Start Date: 1/16/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 1/18/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: DAS Date: JAN 20 2017 Tooling: _____ Date: _____ Run Start ***NR1***
QC: 21 Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***
9-89

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3582	C								

110 0.34
110 BENDING MACHINE - SKIDTUBES
CNC Bend 1 Memo 0.00
CNC Delta 100 Bender Bend tube as per program D3582 on CNC Bender and Dwg D3582. Folio 3,
use bending aid DT9632
2- cut fwd end of tube as per dwg

120 0.00
120 QC5- Inspect part completeness to step on W/O
QC Memo 0.01
Quality Control

130 0.00
130 Identify as per dwg & Stock Location: LG002
Packaging Packaging Memo 0.01
Packaging LOCATION : LG002

 17-1-25

4 0 17-01-27

4 0 17-01-27

DAS
18
9-89DAS
18
9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Work Order ID 155913

Wednesday, January 18, 2017 7:42:57 AM

155913

Page 2

Item ID: D3582-1-BENT

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Skidtube Assembly BK117

Start Date: 1/16/2017 Start Qty: 4.00

4

Cust Item ID:

Required Date: 1/18/2017 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.07							
Quality Control									

17/01/30 *[Signature]*
MF
17-1-30

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : ☐			

Picklist Print

Tuesday, January 17, 2017 2:10:18 PM

Page 1

Work Order ID: 155913

155913

Parent Item: D3582-1-BENT

D3582-1-BFNT

Parent Item Name: Skidtube Assembly BK117

Start Date: 1/16/2017

Required Date: 1/18/2017

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV:A 14.01.17 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2962-150

Manufactured

No

Each

37.0000

D2962-150

3.540 Outer Tube, Extrud

Location

Loc Qty

Loc Code

HALL

37

132753

37

4

17-1-25

7

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

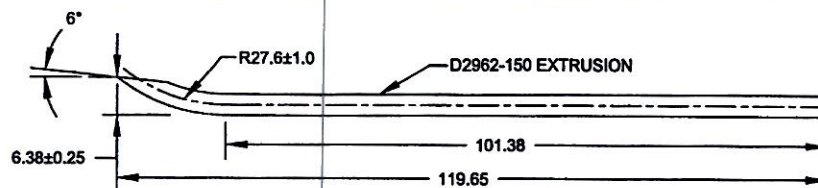
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																							
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OTHER :																																															

PARTS LIST FOR D3582-041 SKIDTUBE ASSEMBLY

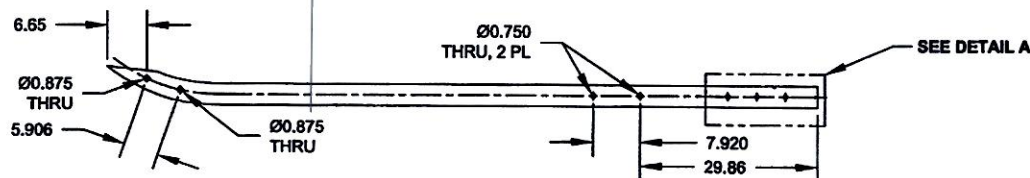
Qty	Part Number	Description
X	D3582-041	SKIDTUBE ASSEMBLY
1	D2962-150	EXTRUSION
1	D2964	CAP
1	D2965	CAP
1	D2971	CROSS BOLT SPACER
1	D3508-3	WEARPLATE
1	D3508-9	WEARPLATE
1	D3508-11	WEARPLATE
1	D3508-13	WEARPLATE
1	D3558-3	GASKET
1	D3558-9	GASKET
1	D3558-11	GASKET
1	D3558-13	GASKET
1	D3584-1	WEB
3	D3682-1	CROSS BOLT SPACER
1	D3682-3	CROSS BOLT SPACER
2	D5304-1	CROSS BOLT SPACER
36	AEIS-1032-130	INSERT
2	AL57-428-165	INSERT
28	AN3C4A	BOLT
2	AN3-5A	BOLT
2	AN4-4A	BOLT
28	NAS1149C0332R	WASHER (AN960C10L)
2	NAS1149D0332J	WASHER (AN960JD10L)
2	NAS1149D0416J	WASHER (AN960JD416L)

NOTES:

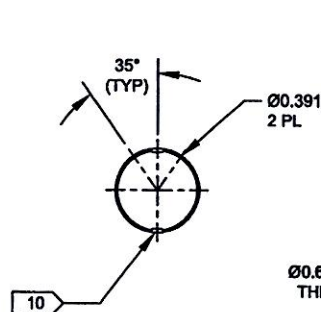
- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER QSI 005 4.1 PRIOR TO INSERTING D3584-1 WEB. POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3. ANTI-SKID PAINT AS INDICATED TO 1.00 ABOVE CENTER LINE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 17.5 lbs
- 8) WELDING: PER DART QSI 004.
- 9) INSERT D3584-1 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- 10) USE DART DRILL TEMPLATE DT8900 TO LOCATE AND DRILL Ø0.297 HOLES (36 PLACES) FOR WEARSHOE INSERTS. INSTALL AEIS-1032-130 PER SECTION G-G (36 PLACES) AFTER FINISH. SEAL WEARPLATE BOLTS WITH SIKAFLEX-241/-291.
- 11) DO NOT INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS IN INDICATED LOCATIONS.



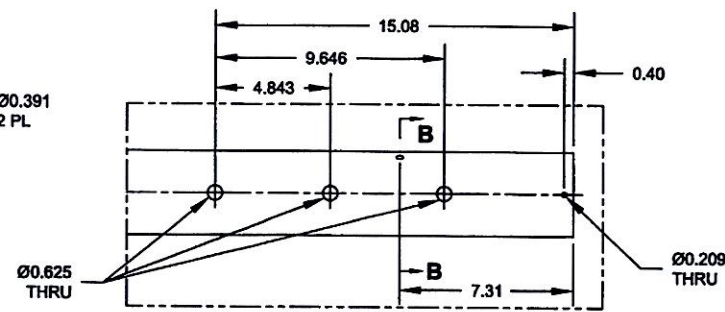
D3582-1 BENDING AND CUTTING DETAIL



D3582-1 DRILLING DETAIL



**SECTION B-B
SCALE 5X**

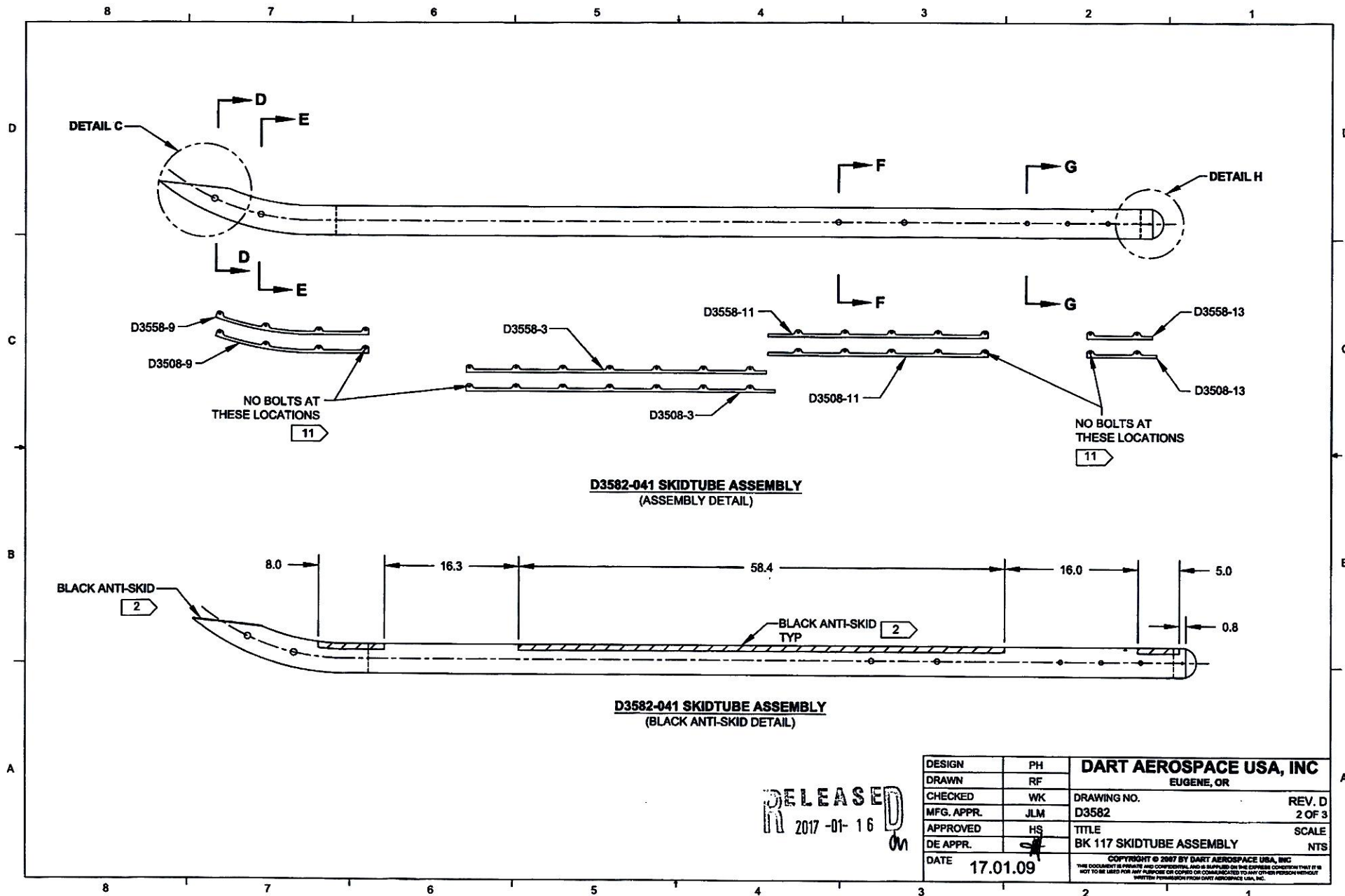


**DETAIL A
SCALE 5X**

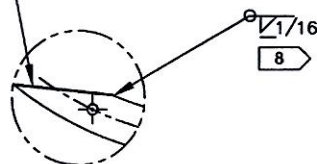
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 155913 MJS
17-01-20

RELEASED
2017-01-16
EUN 17-506

D	D5304-1 WAS D2973; REVISE BOM & SECTION F-F & SECTION NOTES (ZN B7-3, A8-3); REF NCR16-6160	RF	17.01.09
C	D3492 PLUG ASSEMBLIES REMOVED. REFORMAT NOTES SHT 1	AP	15.11.02
B	29.86 WAS 29.87 (ZN C2-1), INCORPORATED DEO D3582-A-1 (ZN D5-1), FORMAT TO CURRENT STD	RF	15.02.20
A	NEW ISSUE	PH	07.08.08
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE USA, INC EUGENE, OR	
DRAWN	RF		
CHECKED	WK	DRAWING NO.	REV. D
MFG. APPR.	JLM	D3582	1 OF 3
APPROVED	HS	TITLE	SCALE
DE APPR.	CM	BK 117 SKIDTUBE ASSEMBLY	NTS
DATE	17.01.09	COPYRIGHT © 2007 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

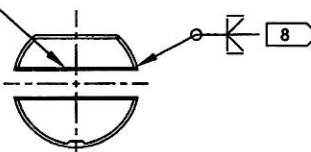


D2964 CAP
(GRIND FLUSH)



DETAIL C

D2971 SPACER



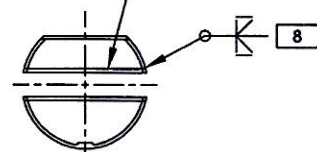
SECTION D-D
SCALE 3X

SECTION D-D NOTES

AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D2971 SPACER
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.750 DRILL TO REMOVE SPILL OVER

D3662-3 SPACER



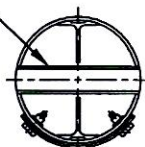
SECTION E-E
SCALE 3X

SECTION E-E NOTES

AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D3662-3 SPACER
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.672 DRILL TO REMOVE SPILL OVER

D5304-1 SPACER
2 PL



SECTION F-F
SCALE 3X
2 PL

SECTION F-F NOTES

AFTER BENDING AND DRILLING ASSY
PERFORM THE FOLLOWING:

1. INSERT D5304-1 SPACER
2. SWAGE TO Ø0.565 +0.005/-0.000 X 1.0
DEEP PER QSI 002
3. OPEN THRU HOLE TO Ø0.625
4. GRIND FLUSH

D3584-1 WEB
REF

D3662-1 SPACER
3 PL

10 AFTER FINISH, INSTALL
AELS-1032-130
INSERT 36 PL

AN3C4A BOLT (1)
NAS1149C0332R WASHER (1)
28 PL

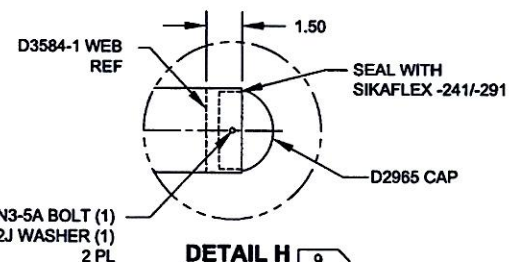
SECTION G-G
SCALE 3X

SECTION G-G NOTES

AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D3662-1 SPACER (3 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.515 DRILL TO REMOVE SPILL OVER

AFTER FINISH, INSTALL
ALS7-428-165 INSERT (1)
AN4-4A BOLT (1)
NAS1149D0416J WASHER (1)
2 PL



DETAIL H 9

AN3-5A BOLT (1)
NAS1149D0332J WASHER (1)
2 PL

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	RF	EUGENE, OR	
CHECKED	WK	DRAWING NO.	REV. D
MFG. APPR.	JLM	D3582	3 OF 3
APPROVED	HS	TITLE	SCALE
DE APPR.	HS	BK 117 SKIDTUBE ASSEMBLY	NTS
DATE	17.01.09	COPYRIGHT © 2007 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

RELEASED
2017-01-16